



THE NEXUS BETWEEN AGEING POPULATION, INNOVATION, ENTREPRENEURSHIP AND SUSTAINABLE DEVELOPMENT

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Abstract. Research on the nexus of innovation, ageing population, entrepreneurship and sustainable economic development is a matter of tremendous interest latterly, as researchers are studying for solution leading to sustainable economic development and encouragement to entrepreneurship. According to Grilo and Thurik (2005), the entrepreneurial activity is at the heart of competitiveness, productivity growth, innovation, economic growth and job creation. Given this context, the article aim to observe connection between sustainable development and ageing population from the perspective of notional reflection in literature and examine the process in European Union states. The method of research is based on analysis of relevant comparison and interpretation. The research consequences indicate that sustainable economic development and entrepreneurship have supported by innovative small and medium enterprises and point out that Innovation is the gear of sustainability. On the other hand, ageing population of the European Union is a barrier of sustainable entrepreneurship.

Keywords: ageing population, innovation, entrepreneurship, sustainable development.

JEL classification: M16.

1. Introduction

The relations between innovation, ageing population, entrepreneurship and sustainable economic development is particularly thematic given the interest on prosperity of life, reconcile innovation and entrepreneurship as a demand of sustainability. Dahlstrand and Stevenson (2008) indicate that entrepreneurship and small and medium enterprises (SMEs) continue to be a key source of dynamism, innovation and flexibility in advanced industrialized countries, as well as in emerging and developing countries. The fundamental contribution of ordinary entrepreneurship is job creation. Innovative entrepreneurship is more likely to lead to higher value-added jobs and wealth creation and firms with higher growth rates will grow by opportunity of the venture and its innovativeness (Stevenson 2002). The European Union response to the challenge of population ageing is the active aging policy, which is reflected in the two complementary targets: firstly, to increase the employment rate of elderly workers and, secondly to in-

crease the retirement age by decisions of European commission (2009a, 2009b).

The research cannot provide the answer for all questions, conversely it provides ideas for debate, exploring some ways in which ageing population, sustainably innovative entrepreneurship is utilized in connection with sustainable economic development in the European Union. The research includes two parts: the first part contains some review on literature regarding ageing, innovation, entrepreneurship in connection to sustainable development. Second part includes a research on this subject in the European Union states by using method of analysis on interpretation and appropriate comparison. The article ends with the part of conclusion concerning the main ideas of the empirical research.

2. Literature review

A. Smith (2000) claimed that variable features of innovation in the 18th century and later generation of professionals have showed that innovation has a great potential of economic activity. Lately, it is

proved that innovation is the engine of growth, a significant element of development accomplishments Fagerberg *et al.* (2011). The research topic of sustainable entrepreneurship is relatively recent in the area of scientific preoccupation, developed especially in the last decade, as prior to 2002 there were only a few papers in the area of sustainable development and entrepreneurship (Hall, Daneke, Lenox 2010). Regarding to OECD (2007a), today, innovative performance is a crucial factor in determining competitiveness and national progress, and much of the rise in living standards is due to innovation emphasizing the fact that improving the business environment for innovation is especially important as business is the main driver of innovation. Both entrepreneurship and sustainable development are considered as solution to assure the future development of the entire society (Stefanescu *et al.* 2011).

Despite a long history of development efforts, SMEs, including the informal sector, were perceived rather as a synthetic construction mainly of “social and political” importance, especially throughout the 1980’s and up to late 1990’s Hallberg (2001). Although domestic SMEs and the informal sector constituted most of what could be and what are still deemed as “the” private business activity in most developing countries, private sector development strategies advocated that implementations in these countries were skewed towards the needs of large-scale business, including foreign investments. This type of policy advice was partly motivated by the rather disappointing results achieved through extensive SME support systems which operated in developed countries since the 1970’s (Meyer-Stamer, Jörg and Frank Waltering 2000). Arguments of the rating process of entrepreneurship notion often begun from Schumpeter studies. The goal of the recent research was the effects and consequences of entrepreneurship. Attention was paid to the yield of production, entrepreneurs were evaluated like engine of man power and continuum of effective production. Unfortunately Schumpeter could not improve such a modality and did not describe it in term. But he was the first person who gave the direction for the future researches.

According to Kanter (2000), innovation and creation are seen as interactive processes, which are figured by a different schedule of institutional routines and social conventions. Possible innovators can be interested in particular issue that develops into an innovation for different reasons. And one of those reasons is self-motivated entrepreneurial activities. Freel (2003) separated four main areas, limiting innovations in SMEs. They

are finance, information, work force and management.

Sustainable entrepreneurship obtains such main features as competitiveness, social responsibility, innovativeness, progressiveness, knowledge creation and usage, dynamism and seeking for business benefits creating social value (Kriščiūnas and Greblkaitė 2007). Taking into consideration that usually innovation is a gear of entrepreneurial activities, regarding to Audretsch and Thurik (2001), entrepreneurs are critical to the entrepreneurial capacity and innovation process as a key element in the transfer of knowledge in the commercialization process.

Although there are clearly defined some significant business and competitive advantages which have to be gained, the literature on environmental management and green innovation shows that most SMEs are slowly accepting environment-related improvements. For example in the European Union, only 29% of SMEs have introduced measures to save energy or raw materials (compared with 46% of large enterprises) and only 4% have a comprehensive energy efficiency system such as EMAS or ISO14001 in place (compared with 19% of large enterprises) (Calogirou *et al.* 2010). ACCA’s research between the world’s most promising high-growth SMEs shows that many high-effect entrepreneurs (47%) are motivated by the need to make a difference in the world, and that this motivation links with good environmental practice. On the other hand, those who were encouraged mostly by money have finished developing their businesses more slowly (ACCA 2012b).

Management and financial accounting mechanisms have been considered as strong means used in communicating, planning, managing and enhancing the economic success of businesses, more wider mechanism of environmental accountability have the possibility to have strong tools in the communicating, planning, managing and enhancing the environmental effect of organizations activity. Environmental accounting can be regarded as covering all fields of accounting that appears from the business reaction to environmental pressure or small and medium-sized accounting practitioners (SMPs) can get a significant influence on fostering environmental accounting and accountability practices’ (Spence *et al.* 2012).

SMEs’ in more informal way for practicing sustainability and demonstrates that they are simply not realizing the strategic advantages in their current or potential sustainability activities. Indeed, research confirms that SMEs’ sustainability strategies are generally informal, while large

firms' sustainability strategies have a higher degree of integration within corporate strategy (Russo and Tencati 2009).

According to Schaltegger and Wagner (2011) such a mettle touch of entrepreneurship which does not only provide contribution to a organizations sustainable development, but also creates a large contribution to sustainable development of the society and market as a whole, needs for substantial sustainable innovations. Variable studies of the economic literature have acknowledged its role, so entrepreneurship has been identified as a micro driver of economic growth and innovation (Audretsch al. 2006). Following researches, there is strongly indicated the nexus between entrepreneurial efforts, innovation and underlying research is aimed to commercialize the consequences of development (UN 2012).

Some approaches makes segregation between ordinary and innovative entrepreneurship, these two models of entrepreneurship may result in several economic outcomes (Waasdorp 2002). The economic and social impacts of an ageing population are widely discussed lately. However the environmental effect of the rapidly ageing population is neglected. Ageing population is growing everywhere in the world, but is most advanced in the richest countries. Among the countries currently classified by the United Nations as more developed (which had a population of 1.2 billion in 2005), the median age of the population rose from 29.0 in 1950 to 37.3 in 2000, and is forecast to rise to 45.5 until 2050. The corresponding figures for the world as a whole are 23.9 for 1950, 26.8 for 2000, and 37.8 for 2050. In Japan, one of the fastest ageing countries in the world, there were 9.3 people younger than 20 for every person older than 65 in 1950. By the year 2025, the ratio is forecast to be 0.59 people younger than 20 for every person older than 65 (United Nations 2004).

According to Weil (1997) the sources of ageing population lie in two demographic phenomena: growing life expectancy and declining fertility. An increase in longevity grows in the average age of the population by raising the number of years that each person is old relative to number of years in which he is young. A decline in fertility increases the average age of the population by changing the balance of people born recently (the young) to people born earlier (the old). Of these two forces, it is declining fertility that is the dominant contributor to population aging in the world today. In other words, it is the huge reduction in the entire fertility rate over the last 50 years, is firstly population aging is taking place in the most developed countries. Because many of those countries are going through higher rate of fertility progression,

they will inhabit higher population aging than the latterly developed states in the future.

The sustainable development as a means to ensure human well-being, equitably shared by all people today and in the future, requires that the interrelationship between population, resources, the environment and development should be fully recognized, appropriately managed and brought into harmonious, dynamic balance. To achieve sustainable development and the higher quality of life for all people, states should reduce and eliminate unsustainable pattern of production and consumption and promote appropriate policies including population related policies, in order to meet the needs of current generations without compromising the ability of future generations to meet their own needs. ICPD Programme of action, Chapter 2, Principle 6. Regarding to UN Secretary-General's Video Message to the 27th Annual Conference of the International Union for the Scientific Study of Population, to maintain sustainable development we need to know how many people live in the planet now and how much will be added in the years coming. We need to know how old they are and how will change age distribution. Population ageing and growth, urbanization and migration have impact on all objectives of development (UN Secretary-General's Video Message to the 27th Annual Conference of the International Union for the Scientific Study of Population, Busnan, 26 August 2013). The effect of rapid population ageing across the world is that we are entering into the era of the 'age bulge', where until 2030 there will be more people over 60 than children under 10. Until 2050, there will be 2 billion older people in the planet, the majority of which will be women - current figures show that there are 84 men for every 100 women over the age of 60, and the oldest people will be living in developing countries. (<http://esa.un.org/unpd/wpp/index.htm>).

Regarding to World Development Report (1993) present and future figures of stroke are strictly related to the demographic transition, occurring in both developed and developing countries. The world population aged 60 and over was 488 millions in 1990, and was projected to be about 1,363 millions in 2030, with a percentage increase of 180%. In 1990, developing countries contained the 58% of the world elderly, while in 2030 about two-thirds of the total elderly population will be dwelling in these countries. Among European Union members, for instance, Italy is the country with the highest percentage of people over the age of 65 years (19.9%). About 153,000 new stroke cases are expected each year in the Italian elderly population. Assuming stable incidence rates, a total of 195,000 new cases per year are

expected in 2020, simply due to the ageing population Di Carlo (2003).

According to Boerch-Supan (2003), and Weil (1997) population ageing is the shift in the age distribution away from younger to elder age groups, which is caused mainly by long-term replacement to low fertility. There are a variety of mechanisms by which population ageing can have the impact on economic growth and the macro-economy in general. The population process and the economic activity of the elderly population affect the development of entrepreneurship, is seen as the development of the SME sector. It should be noticed, however, that the development of these sectors and their role in the economy is also influenced by several other factors which do not reflect demographic situation. In particular, they may include the economic policy of a given state, legal and administrative determinants are connected with starting up and running enterprises, impulses are coming from international business environment, the type of the market or even cultural determinants are associated with various traditions of people running their own business. In the short run an increase in the number of enterprises from the SME sector is influenced by the economic situation which can be diverse in particular in EU countries (Kurek and Rachwal 2011).

3. Research methodology

There are variable ways for evaluating and measuring the rate of efficiency of sustainable entrepreneurship or sustainable development at state level. The article aim is to identify the impact of ageing population and in parallel to determine the role of innovation and entrepreneurship in supporting sustainable development in EU. The sample which has given in the research including more sustainable developed countries, based on the top 10 European Union states in each ranking, also establish the sample of the less developed states. The methodology of research is specific for the aim and contains comparative analysis of data and literature review, continued by express a personal interpretation regarding the research consequences. The literature review is based on studies, official documents and articles, reports in order to emphasize the importance of the subject.

4. Research results

Firstly this section's aim is to identify the impact of innovation and entrepreneurship on supporting sustainable development in European Union coun-

tries, contains comparative analysis of data based on more sustainable developed countries and less sustainable developed countries. These countries are: FRANCE, GERMANY, NEDHERLANDS, AUSTRIA, SWEEDEN, and other group is (less sustainable developed countries): HUNGARY, ESTONIA, BULGARIA, ROMANIA, MALTA and PORTUGAL. Based on literature, SMEs show the dynamism of entrepreneurial innovations.

Secondly this section identifies the role of ageing population in sustainable development, comparative analysis of impact on older ages sustainable development as a barrier for research in European Union countries.

4.1. The impact of innovation and entrepreneurship in supporting sustainable development in European Union countries

The situation in Fig. 1, as regards the "Linkages & entrepreneurship" dimension, in all indicated countries, in the group of less sustainable developed countries when SMEs are less interested in innovation activities and their scores are below EU average. Also in the group of more sustainably developed countries in all indicated states, their scores are above EU average. The reason of this is the main role of SMEs innovative activities.

The situation in Fig.2, as regards the "innovators" dimension, Portugal scoring is above the EU average, but Portugal is in the group of less sustainably developed countries. Also among all indicated countries in group of more sustainably developed countries Netherlands scoring is below the EU average.

The analysis point out that, countries with low performances in context of innovative entrepreneurship have weak score of sustainable development.

4.2. The sustainable development, sustainable entrepreneurship and the consequences of population ageing

Within the next 40 years, the old age dependency ratio from the level of people aged 65 and over labor force population aged 15-60, is reflected as double from 25% to 50% in the European Union states. It shows that the European Union will lose working -age for every person over 65 aged to a level from 2 to 1. In the European Union member countries, the highest level of ageing population in 2007 was recorded in Italy (30.2%), Germany (29.9%), Greece (27.6%) and Sweden (26.4%). The lowest ratio was recorded in Ireland (15.8%), Malta (19.8%), Poland (19%), Cyprus (17.6%) and Slovakia (16.5%).

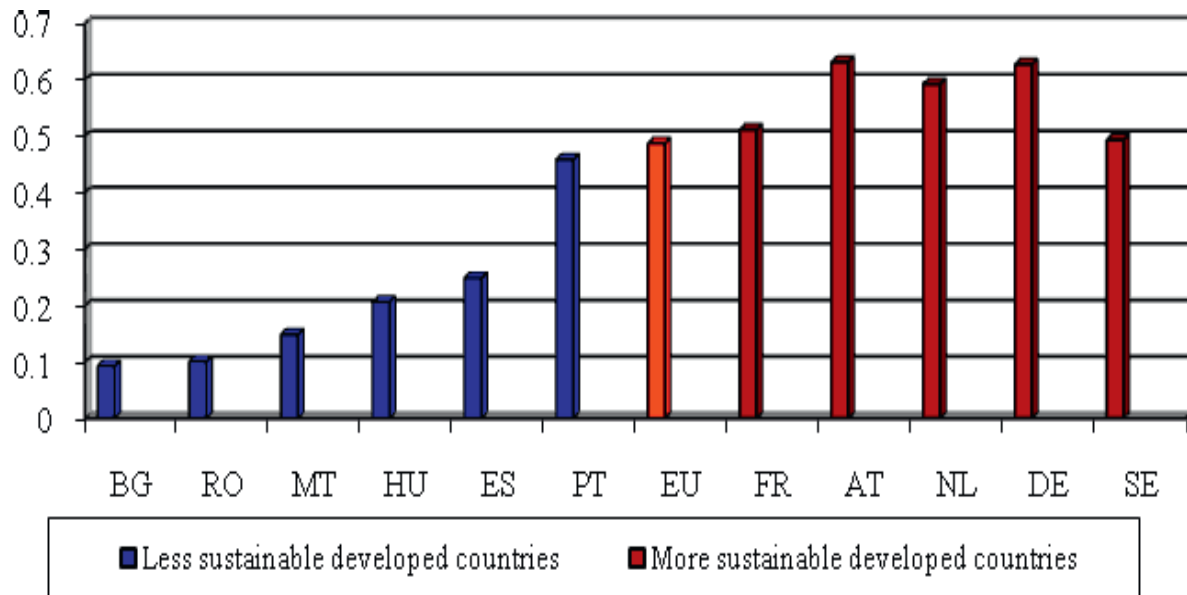


Fig. 1. Performance scores of entrepreneurship and linkages (Source: SSI 2011)

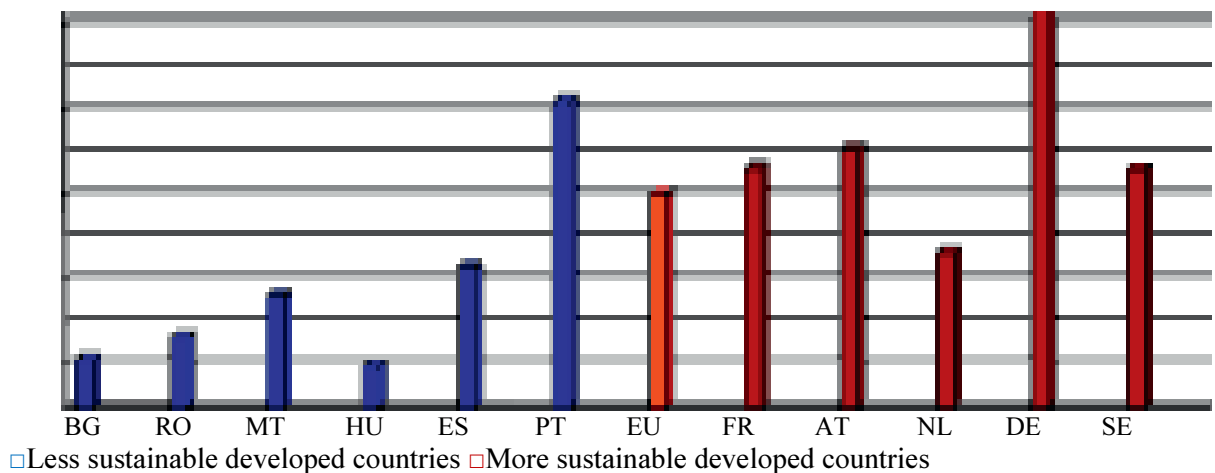


Fig. 2. Performance scores of innovators (Source: SSI 2011)

For the last decade, the highest progressive increase of the old-age dependency ratio was observed in Germany (30%). In the Baltic countries Estonia (17%), in Lithuania and Latvia (16%). Also in Mediterranean states Slovenia (23%), Greece and Italy (16%).

In this highly changing economies, is needed an entrepreneurial person who can provide and implement the solutions and to accomplish new ideas. European Commission defining entrepreneurship offers not only education of young people but also to improve proficiency between elderly people. The policy of developing entrepreneurship in EU means widely developed pro-entrepreneurial education which would also include elderly people

in order to raise indicator of their employment. On the other hand, it increases self-employment and the development of the sector of small and medium enterprises as their effect in creating new opportunities is significant. Thus, it is possible to consider that entrepreneurship is a key in solving socio-economic issues of aging population in EU (Kurek and Rachwal 2011). For more information: development of entrepreneurship of ageing population in the European Union (Slawomir Kurek & Tomasz Rachwal 2011).

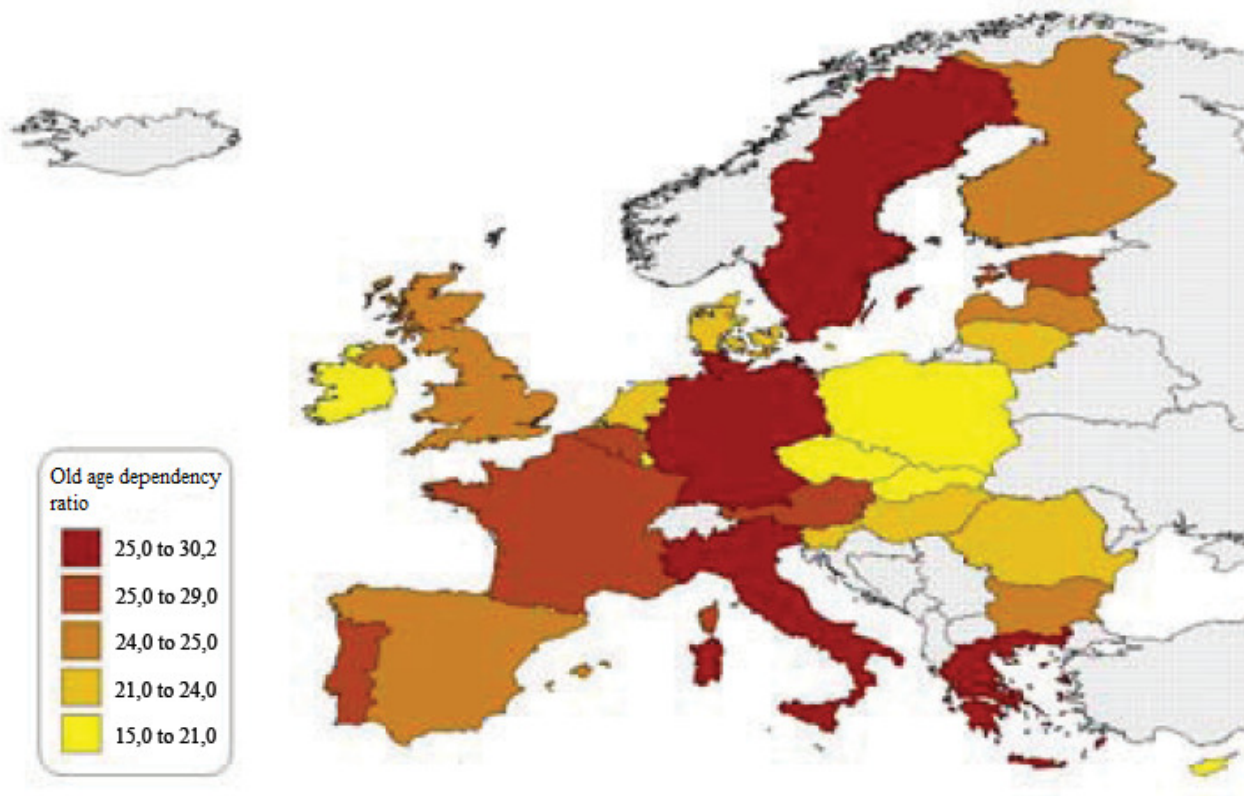


Fig. 3. Old age dependency ratio in 2007 (Source: Eurostat data; Kurek and Rachwal, 2011)

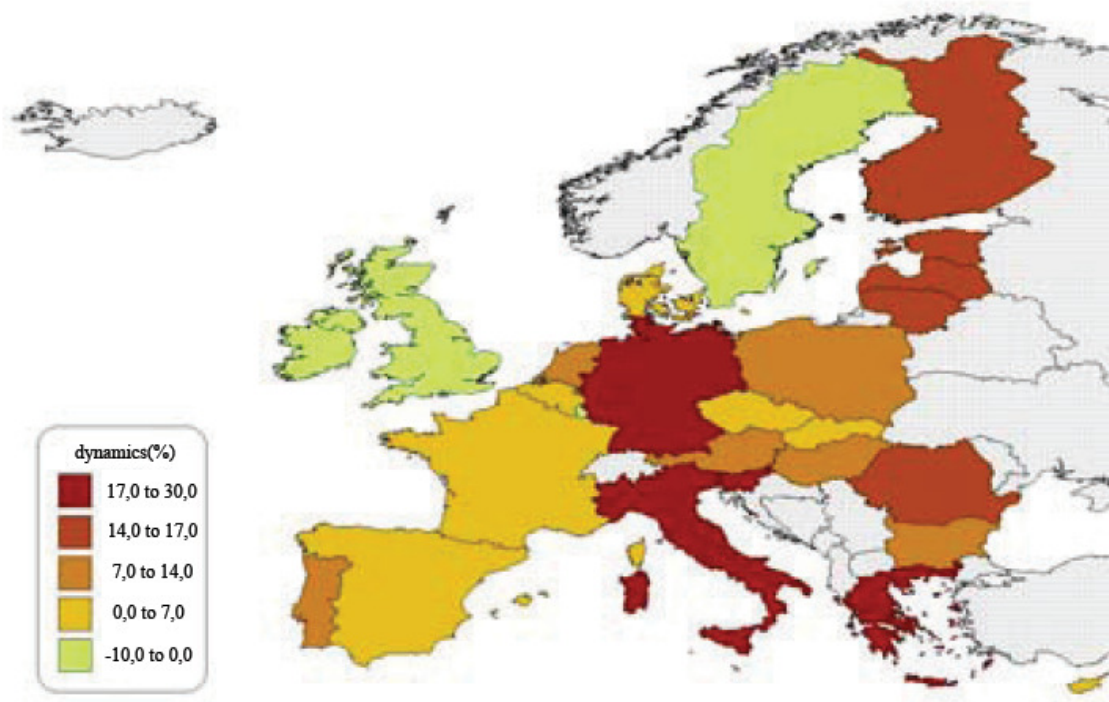


Fig. 4. Dynamics of an old-age dependency ratio in the years 1997-2007 (Source: the Eurostat data; Kurek and Rachwal 2011)

For the last decade, the highest progressive increase of the old-age dependency ratio was observed in Germany (30%). In Baltic countries Estonia (17%) and Lithuania and Latvia (16%). Also in Mediterranean states Slovenia (23%), Greece and Italy (16%).

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5. Conclusions

The growth of innovative businesses is very important for thematic alteration for sustainable development. This research points out that the economic efficiency of elderly population and ageing population have significant impact on the sustainable development and sustainable entrepreneurship. The progress of population ageing is a barrier of sustainable development in SMEs sector. The countries with high rate of elderly population have weaker score in terms of innovative entrepreneurship in EU countries. Development of SMEs sector and the role of SMEs in the economy are affected by variable elements which were not projected in the demographic status. The states where SMEs has lower performance of innovative entrepreneurship have weaker scores of sustainable development, while countries where SMEs relations with entrepreneurship are more innovative and took place in the high ranking for sustainable development. Therefore, business sectors need promoting by innovation activities and initiatives in parallel with sustainable development.

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